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### Dissolved Metals by EPA 6000/7000 Series Methods (Continued)

QC Туре	Sample Conc.	Spike Qty.	Result	Unit	Spike % Rec.	Control Limits	RPD	RPD Limits RL	
Analyte:	Zinc/USEPA-6020	(Continued	)					· ••	
QC Batch: 0508945 (	3010A Digestion)						Analyzed:	10/01/2005	By: JMF
Method Blank			7.5	ug/L				4.0	
*Laboratory Control Sam	ple	100	101	ug/L	101	80-137		4.0	
QC Batch: 0509107 (	General Metals Prep)						Analyzed:	10/11/2005	By: JMF
Method Blank			<1.0	ug/L				1.0	
Laboratory Control Samp	ole	40.0	40.3	ug/L	101	80-137		1.0	
QC Batch: 0509313 (	General Metals Prep)						Analyzed:	10/11/2005	By: JMF
Method Blank			<1.0	ug/L				1.0	
Laboratory Control Samp	ple	40.0	40.3	ug/L	101	80-137		1.0	



### Total Metals by EPA 6000/7000 Series Methods

	Sample	Spike			Spike	Control		RPD	
QC Type	Conc.	Qty.	Result	Unit	% Rec.	Limits	RPD	Limits RL	<u> </u>
Analyte: A	luminum/USEP/	A-6010B							
QC Batch: 0509149 (3010A [	Digestion)						Analyzed:	10/13/2005	By: DSC
Method Blank			<50	ug/L	7727			50	
Laboratory Control Sample		1250	1240	ug/L	99	86-120		50	
QC Batch: 0509325 (3010A I	Digestion)		<u></u>				Analyzed:	10/17/2005	By: KLV
Method Blank			<50	ug/L				50	
Laboratory Control Sample		1250	1220	ug/L	98	86-120		50	
Analyte: A	ntimony/USEPA	-6020							
QC Batch: 0509101 (3010A [	Digestion)						Analyzed:	10/08/2005	ву: ЈМБ
Method Blank			<5.0	ug/L				5.0	
Laboratory Control Sample		100	96.2	ug/L	96	83-129		5.0	
QC Batch: 0509326 (3010A I	Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<5.0	ug/L				5.0	
Laboratory Control Sample		100	98.3	ug/L	98	83-129		1.0	
Analyte: A	rsenic/USEPA-6	020							
QC Batch: 0509101 (3010A	Digestion)						Analyzed:	10/08/2005	ву: ЈМР
Method Blank			<5.0	ug/L				5.0	
Laboratory Control Sample		100	90.2	ug/L	90	83-111		5.0	
QC Batch: 0509326 (3010A I	Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<25	ug/L				25	
Laboratory Control Sample		100	91.0	սց/է	91	83-111		1.0	
Analyte: B	arium/USEPA-60	020							
QC Batch: 0509101 (3010A	Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<100	ug/L				100	
Laboratory Control Sample		100	91.9	ug/L	92	86-119		100	
QC Batch: 0509326 (3010A	Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<500	ug/L				500	



# Total Metals by EPA 6000/7000 Series Methods (Continued)

	Sample Conc.	Spike Qty.			Spike % Rec.	Control Limits		RPD Limits	
(C Type	CORC.		Result	Unit	70 Kec.	Limito	RPD	RL	
Analyte:	Barium/USEPA-	6020 (Contin	ued)						· · · · · · · · · · · · · · · · · · ·
QC Batch: 0509326 (Cont	tinued) (3010A Diges	stion)					Analyzed:	10/08/2005	By: JMF
aboratory Control Sample		100	96.6	ug/L	97	86-119		1.0	
Analyte:	Beryllium/USEF	PA-6020	_						
QC Batch: 0509326 (3010	A Digestion)						Analyzed:	10/11/2005	By: JMF
Method Blank	<u> </u>		<1.0	ug/L				1.0	
Laboratory Control Sample		100	91.6	ug/L	92	81-116		1.0	·
QC Batch: 0509101 (3010	A Digestion)						Analyzed:	10/13/2005	By: JMF
Method Blank			<1.0	ug/L		2.77		1.0	
Laboratory Control Sample		100	88.5	ug/L	88	81-116		1.0	
Analyte:	Boron/USEPA-6	010B							
QC Batch: 0509325 (301)	OA Digestion)		<del></del>				Analyzed:	10/13/2005	By: DSC
Method Blank			<100	ug/L				100	
Laboratory Control Sample		250	255	ug/L	102	78-122		100	
QC Batch: 0509149 (301	0A Digestion)						Analyzed:	10/14/2005	By: JLT
Method Blank			<100	ug/L				100	
Laboratory Control Sample		250	255	ug/L	102	78-122		100	
Analyte:	Cadmium/USE	PA-6020							
QC Batch: 0509101 (301	0A Digestion)						Analyzed:	10/08/2005	Ву: ЈМЕ
Method Blank			<1.0	υg/L				1.0	
Laboratory Control Sample		100	93.7	ug/L	94	83-112		1.0	
QC Batch: 0509326 (301	OA Digestion)		<u>-</u>		,		Analyzed:	10/08/2005	By: JMF
Method Blank			<1.0	ug/L				1.0	
Laboratory Control Sample		100	93.5	ug/L	94	83-112		0.20	)
Analyte:	Calcium/USEPA	N-6010B							
QC Batch: 0509149 (301	OA Digestion)						Analyzed:	10/13/2005	
Method Blank			<0.50	mg/L				0.50	)

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### Total Metals by EPA 6000/7000 Series Methods (Continued)

	Sample	Spike			Spike % Rec.	Control Limits		RPD Limits	
QC Туре	Conc.	Qty.	Result	Unit	70 REC.	Limits	RPD	RL	
Analyte: C	alcium/USEPA-6	6010B (Cont	tinued)						
QC Batch: 0509149 (Continu	ed) (3010A Digesti	on)					Analyzed:	10/13/2005	By: DSC
Laboratory Control Sample		12.5	13.4	mg/L	107	88-121		0.50	
QC Batch: 0509325 (3010A	Digestion)				<u> </u>		Analyzed:	10/13/2005	By: DSC
Method Blank			<0.50	mg/L				0.50	
Laboratory Control Sample		12.5	13.5	mg/L	108	88-121		0.50	
Analyte: C	hromium/USEP	A-6020							
QC Batch: 0509101 (3010A	Digestion)						Analyzed:	10/08/2005	Ву: ЈМЕ
Method Blank			<10	ug/L				10	
Laboratory Control Sample		100	97.0	ug/L	97	84-122		10	
QC Batch: 0509326 (3010A	Digestion)	<u> </u>					Analyzed:	10/08/2005	Ву: ЈМЕ
Method Blank			<10	ug/L				10	
Laboratory Control Sample		100	98.4	ug/L	98	84-122		1.0	
Analyte: C	obalt/USEPA-60	10B							
QC Batch: 0509149 (3010A	Digestion)	<del></del>					Analyzed:	10/13/2005	By: DSC
Method Blank			<10	ug/L				10	
Laboratory Control Sample		250	255	ug/L	102	84-117		10	
QC Batch: 0509325 (3010A	Digestion)						Analyzed:	10/17/2005	By: KLV
Method Blank			<10	ug/L				10	
Laboratory Control Sample		250	253	ug/L	101	84-117		10	
Analyte: C	opper/USEPA-6	020							
QC Batch: 0509101 (3010A	Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<4.0	ug/L				4.0	
Laboratory Control Sample		100	95.5	ug/L	96	86-123		4.0	
QC Batch: 0509326 (3010A	Digestion)						Analyzed:	10/08/2005	By: JMF



### Total Metals by EPA 6000/7000 Series Methods (Continued)

	Sample	Spike			Spike % Rec.	Control Limits	_	RPD Limits	
QC Type	Conc.	Qty.	Result	Unit	70 Rec.	Linia	RPD	RL	
Analyte:	Copper/USEPA-60	020 (Contin	ued)						
QC Batch: 0509326 (Con-	tinued) (3010A Digesti	ion)					Analyzed:	10/08/2005	By: JMF
Laboratory Control Sample		100	99.7	ug/L	100	86-123		1.0	
Analyte:	Iron/USEPA-6010	В							
QC Batch: 0509149 (3010	OA Digestion)		-				Analyzed:	10/13/2005	By: DSC
Method Blank			<20	ug/L				20	
Laboratory Control Sample		250	268	ug/L	107	83-118		20	
QC Batch: 0509325 (301)	0A Digestion)						Analyzed:	10/13/2005	By: DSC
Method Blank			<20	ug/L	4.			20	
Laboratory Control Sample		250	276	ug/L	110	83-118		20	
Analyte:	Lead/USEPA-6020	0							
QC Batch: 0509101 (301	0A Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<3.0	ug/L				3.0	
Laboratory Control Sample		100	99.6	ug/L	100	87-118		3.0	
QC Batch: 0509326 (301	0A Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<3.0	ug/L				3.0	
Laboratory Control Sample		100	101	ug/L	101	87-118		1.0	
Analyte:	Lithium/USEPA-6	5010B						. <u></u> .	
QC Batch: 0509149 (301	0A Digestion)						Analyzed:	10/13/2005	By: DSC
Method Blank			<8.0	ug/L				0.8	
Laboratory Control Sample		250	242	ug/L	97	86-115		8.0	
QC Batch: 0509325 (301	0A Digestion)						Analyzed:	10/13/2005	By: DSC
Method Blank			<8.0	ug/L				8.0	
Laboratory Control Sample		250	266	ug/L	106	86-115		8.0	
Analyte:	Magnesium/USE	PA-6010B	<u> </u>	·					
QC Batch: 0509149 (301	0A Digestion)						Analyzed:	10/13/2005	
Method Blank			<0.50	mg/L				0.50	١

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#### Total Metals by EPA 6000/7000 Series Methods (Continued)

	Sample Conc.	Spike Qty.			Spike % Rec.	Control Limits		RPD Limits	<u> </u>
QC Type		``	Result	Unit	<u> </u>		RPD	RL	
Analyte:	Magnesium/USE	PA-6010B (	Continued)				_		
QC Batch: 0509149 (Cont	inued) (3010A Digesti	on)			- <u></u>		Analyzed:	10/13/2005	By: DSC
Laboratory Control Sample		12.5	12.8	mg/L	102	87-115		0.50	
QC Batch: 0509325 (3010	A Digestion)				- <del></del>		Analyzed:	10/13/2005	By: DSC
Method Blank			<0.50	mg/L				0.50	
Laboratory Control Sample		12.5	13.0	mg/L	104	87-115		0.50	
Analyte:	Manganese/USE	PA-6010B							
QC Batch: 0509149 (3010	A Digestion)						Analyzed:	10/13/2005	By: DSC
Method Blank			<20	ug/L				20	
Laboratory Control Sample		250	256	ug/L	102	83-118		20	
QC Batch: 0509325 (3010	A Digestion)						Analyzed:	10/13/2005	By: DSC
Method Blank			<20	ug/L				20	
Laboratory Control Sample		250	255	ug/L	102	83-118		20	
Analyte:	Molybdenum/US	EPA-6020							
QC Batch: 0509101 (3010	A Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<10	ug/L				10	
Laboratory Control Sample		100	98.1	ug/L	98	88-114		10	
QC Batch: 0509326 (3010	A Digestion)						Analyzed:	10/08/2005	Ву: ЈМЕ
Method Blank			<10	ug/L	_			10	
Laboratory Control Sample		100	99.6	ug/L	100	88-114		1.0	
Analyte:	Nickel/USEPA-602	20							
QC Batch: 0509101 (3010	A Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<25	ug/L				25	
Laboratory Control Sample		100	93.6	ug/L	94	84-117		25	
OC D-+-h : 050b226 (2016			<u></u>				Applicands	10/08/2005	By: 1MF
QC Batch: 0509326 (3010	IA Digestion)						Analyzeu:	10/00/2005	Dy. 3111

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### Total Metals by EPA 6000/7000 Series Methods (Continued)

QC Type	Sample Conc.	Spike Qty.	Result	Unit	Spike % Rec.	Control Limits	RPD	RPD Limits RL	
Analyte:	Nickel/USEPA-60	20 (Continu	ed)						
QC Batch: 0509326 (Con-	tinued) (3010A Digest	ion)				<del></del> ;	Analyzed:	10/08/2005	By: JMF
Laboratory Control Sample		100	96.2	ug/L	96	84-117		1.0	- 100 Marie - 100
Analyte:	Potassium/USEP	A-6010B						_	
QC Batch: 0509149 (301)	OA Digestion)				<u></u>	·	Analyzed:	10/13/2005	By: DSC
Method Blank			<0.50	mg/L				0.50	
Laboratory Control Sample		12.5	12.3	mg/L	98	87-125		0.50	
QC Batch: 0509325 (301	OA Digestion)						Analyzed:	10/13/2005	By: DSC
Method Blank			<0.50	mg/L				0.50	
Laboratory Control Sample		12.5	13.5	mg/L	108	87-125		0.50	
Analyte:	Selenium/USEPA	-6020							
QC Batch: 0509101 (301	OA Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<5.0	ug/L				5.0	
Laboratory Control Sample		100	81.3	ug/L	81	75-110		5.0	
C Batch: 0509326 (301	0A Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<5.0	ug/L				5.0	
Laboratory Control Sample		100	81.4	ug/L	81	75-110		1.0	
Analyte:	Silver/USEPA-60	20	_					·	
QC Batch: 0509101 (301	0A Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank	<del></del>		<0.20	ug/L				0.20	ı
Laboratory Control Sample		100	98.7	ug/L	99	84-117	·	0.20	 
QC Batch: 0509326 (301	OA Digestion)						Analyzed:	10/08/2005	By: JMF
Method Blank			<1.0	ug/L				1.0	
Laboratory Control Sample		100	102	ug/L	102	84-117		0.20	)
Analyte:	Sodium/USEPA-6	5010B							
QC Batch: 0509149 (301	0A Digestion)						Analyzed:	10/13/2005	<del></del>
Method Blank			<0.50	mg/L				0.50	) '

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# Total Metals by EPA 6000/7000 Series Methods (Continued)

	Sample Conc.	Spike Qty.			Spike % Rec.	Control Limits		RPD Limits	
QC Type	Conc.		Result	Unit	70 REC.		RPD	RL	<u> </u>
Analyte:	Sodium/USEPA-6	010B (Conti	inued)	_				. <u></u>	
QC Batch: 0509149 (Cont	tinued) (301 <b>0</b> A Digesti	ion)	_	·-			Analyzed:	10/13/2005	By: DSC
Laboratory Control Sample		12.5	12.0	mg/L	96	86-117		1.0	
QC Batch: 0509325 (3010	OA Digestion)			· · ·			Analyzed:	10/13/2005	By: DSC
Method Blank		***************************************	<0.50	mg/L				0.50	
Laboratory Control Sample		12.5	12.9	mg/L	103	86-117		1.0	
Analyte:	Strontium/USEP	4-6010B							
QC Batch: 0509149 (3010	DA Digestion)				-		Analyzed:	10/13/2005	By: DSC
Method Biank		··	<50	ug/L				50	
Laboratory Control Sample		250	255	ug/L	102	91-113		. 50	
QC Batch: 0509325 (301)	OA Digestion)	. <u>-</u>					Analyzed:	10/13/2005	By: DSC
Method Blank			<50	ug/L				50	
Laboratory Control Sample		250	267	ug/L	107	91-113		50	
Analyte:	Zinc/USEPA-6020					<u>.</u> .			
QC Batch: 0509101 (301	0A Digestion)	_					Analyzed:	10/08/2005	By: JMF
Method Blank			<50	ug/L				50	
Laboratory Control Sample		100	87.D	ug/L	87	80-137	. <u></u>	50	
QC Batch: 0509326 (301	OA Digestion)						Analyzed:	10/08/2005	Ву: ЈМР
Method Blank	-	_	<50	ug/L				50	
Laboratory Control Sample		100	86.5	ug/L	86	80-137		1.0	



### Physical/Chemical Parameters by EPA/APHA/ASTM Methods

QC Type	Sample Conc.	Spike Qty.	Result	Unit	Spike % Rec.	Control Limits	RPD	RPD Limits RL	
Analyte: Alkalinit	ty, Bicart	onate/US	EPA-310.1						
QC Batch: 0509420 (General Inorgan	nic Prep)						Analyzed:	10/06/2005	By: INR
Method Blank			<2.0	mg/L				2.0	
Laboratory Control Sample		238	228	mg/L	96	89-111		2.0	
QC Batch: 0509016 (General Inorgan	nic Prep)						Analyzed:	09/23/2005	By: VAS
Method Blank			<2.0	mg/L				2.0	
Laboratory Control Sample		238	226	mg/L	95	89-111		2.0	
QC Batch: 0509153 (General Inorgan	nic Prep)						Analyzed:	09/28/2005	By: VAS
Method Blank	<del>i-</del>		<5.0	mg/L				5.0	
Laboratory Control Sample		238	236	mg/L	99	89-111		5.0	
Analyte: Alkalini	ty, Carbo	nate/USEF	PA-310.1						
QC Batch: 0509422 (General Inorgan	nic Prep)				· ·		Analyzed:	10/06/2005	By: INR
Method Blank			<2.0	mg/L				2.0	
Laboratory Control Sample		378	335	mg/L	89	0-200		2.0	
QC Batch: 0509017 (General Inorgan	nic Prep)	N=112.					Analyzed:	09/23/2005	By: VAS
Method Blank			<2.0	mg/L				2.0	
Laboratory Control Sample		378	322	mg/L	85	0-200		2.0	
QC Batch: 0509154 (General Inorgan	nic Prep)						Analyzed:	09/28/2005	By: VAS
Method Blank			<5.0	mg/L				5.0	
Laboratory Control Sample		378	330	mg/L	87	87-110		5.0	
Analyte: Alkalini	ty, Total,	/USEPA-310	0.1			<u> </u>			- <u>-</u>
QC Batch: 0509423 (General Inorgan	nic Prep)						Analyzed:	10/06/2005	By: INR
Method Blank			<2.0	mg/L				2.0	
Laboratory Control Sample		238	228	mg/L	96	0-200	<u></u>	2.0	
QC Batch: 0509015 (General Inorgan	nic Prep)						Analyzed:	09/23/2005	By: VAS
Method Blank			<2.0	mg/L		. — -		2.0	



## Physical/Chemical Parameters by EPA/APHA/ASTM Methods (Continued)

	Sample	Spike			Spike % Rec.	Control Limits		RPD Limits	
QC Type	Conc.	Qty.	Result	Unit	70 NCC.		RPD	RL	
Analyte:	Alkalinity, Total	/USEPA-310	).1 (Continued	1)					
QC Batch: 0509015 (Cor	ntinued) (General Inorg	anic Prep)					Analyzed:	09/23/2005	By: VAS
Laboratory Control Sample		238	226	mg/L	95	0-200		2.0	
QC Batch: 0509150 (Ger	neral Inorganic Prep)		· <u>-</u>				Analyzed:	09/28/2005	By: VAS
Method Blank			<2.0	mg/L				2.0	
Laboratory Control Sample		238	236	mg/L	99	0-200		2.0	
Analyte:	Chloride/USEPA-:	325.2							
QC Batch: 0509266 (Gei	neral Inorganic Prep)		<u>-</u>				Analyzed:	10/03/2005	By: JLB
Method Blank			<1.00	mg/L				1.00	
Laboratory Control Sample	_	49.7	49.6	mg/L	100	92-109			
QC Batch: 0509573 (Ger	neral Inorganic Prep)	<del></del> .					Analyzed:	10/11/2005	By: JLB
Method Blank			<1.00	mg/L				1.00	
Laboratory Control Sample		49.7	49.4	mg/L	99	92-109			
QC Batch: 0509156 (Ger	neral Inorganic Prep)			<u>-</u>			Analyzed:	09/28/2005	By: JLB
Method Blank			<0.500	mg/L				0.50	0
aboratory Control Sample		49.7	50.2	mg/L	. 101	92-109			
Analyte:	Fluoride/APHA 4	500-F C							
QC Batch: 0509483 (Me	thod-Specific Preparation	on)					Analyzed:	10/07/2005	By: MSM
Method Blank			<0.10	mg/L				0.10	·
QC Batch: 0509205 (Get	neral Inorganic Prep)						Analyzed:	09/29/2005	By: VAS
Method Blank			<0.10	mg/L				0.10	ı
Laboratory Control Sample		2.00	1.97	mg/L	98	88-116		0.10	1
Analyte:	Nitrogen, Ammo	onia/USEPA	N-350.1						
QC Batch: 0509359 (Me	thod-Specific Preparation	on)					Analyzed:	10/04/2005	By: GEH
Method Blank			<0.020	mg/L				0.02	0



### Physical/Chemical Parameters by EPA/APHA/ASTM Methods (Continued)

	Sample Conc.	Spike Qty.		····- <u>·</u>	Spike % Rec.	Control Limits		RPD Limits
QC Type			Result	Unit			RPD	RL
Analyte: Ni	trogen, Ammo	nia/USEPA	-350.1 (Conti	nued)				
QC Batch: 0509359 (Continue	ed) (Method-Specif	fic Preparatio	 in)				Analyzed:	10/04/2005 By: GEH
Laboratory Control Sample		0.810	0.765	mg/L	94	90-110		0.020
QC Batch: 0509143 (General	Inorganic Prep)	= -	<del></del>			-	Analyzed:	09/27/2005 By: GEH
Method Blank			<0.050	mg/L				0.050
Laboratory Control Sample		0.810	0.789	mg/L	97	90-110		0.050
QC Batch: 0509243 (Method-	Specific Preparation	on)			_		Analyzed:	09/29/2005 By: GEH
Method Blank			<0.020	mg/L				0.020
Laboratory Control Sample		0.810	0.804	mg/L	99	90-110		0.020
Analyte: Ni	trogen, Nitrat	e/USEPA-3!	53.2			_		
QC Batch: 0509333 (Method-	Specific Preparation	on)			· ·		Analyzed:	09/20/2005 By: HLB
Method Blank			<0.050	mg/L				0.050
Laboratory Control Sample		0.510	0.518	mg/L	102	90-110		0.050
QC Batch: 0509071 (Method-	Specific Preparation	on)					Analyzed:	09/21/2005 By: HLB
Method Blank			<0.050	mg/L				0.050
Laboratory Control Sample		0.510	0.541	mg/L	106	90-110		0.050
QC Batch: 0509577 (Method-	Specific Preparation	on)					Analyzed:	09/24/2005 By: HLB
Method Blank	· · · · · · · · · · · · · · · · · · ·		<0.050	mg/L				0.050
Laboratory Control Sample		0.510	0.523	mg/L	103	90-110		0.050
QC Batch: 0509733 (Method-	Specific Preparation	on)					Analyzed:	09/28/2005 By: HLB
Method Blank	<u> </u>		<0.050	mg/L				0.050
Method Blank			<0.050	mg/L				0.050
Laboratory Control Sample		0.510	0.517	mg/L	101	90-110		
Laboratory Control Sample			0.517	mg/L		90-110		0.050
QC Batch: 0509743 (Method-	Specific Preparation	on)					Analyzed:	09/30/2005 By: HLB
Method Blank	<del></del>		<0.050	mg/L				0.050



# Physical/Chemical Parameters by EPA/APHA/ASTM Methods (Continued)

	Sample	Spike			Spike	Control		RPD
(С Туре	Conc.	Qty.	Result	Unit	% Rec.	Limits	RPD	Limits RL
	Nitrogen, Nitrat	e/USEPA-35	3.2 (Continue	ed)				
QC Batch: 0509743 (Contin	aued) (Method-Speci	fic Preparation	n)	<u>-i</u>			Analyzed:	09/30/2005 By: HLB
Method Blank	idea) (mediod speci	ne r reparation	<0.050	mg/L				0.050
Laboratory Control Sample		0.510	0.529	mg/L	104	90-110		0.050
Laboratory Control Sample		0.510	0.529	mg/L	104	90-110		0.050
Analyte:	Phosphorus, To	tal/USEPA-3	65.1					
QC Batch: 0508996 (365.1	Digestion)					_	Analyzed:	10/03/2005 By: INR
Method Blank			<0.0100	mg/L				0.0100
Laboratory Control Sample		0.400	0.409	mg/L	102	90-110		0.0100
QC Batch: 0509273 (365.1	Digestion)						Analyzed:	10/05/2005 By: INR
Method Blank			<0.0100	mg/L				0.0100
Laboratory Control Sample		0.400	0.408	mg/L	102	90-110		0.0100
QC Batch: 0508996 (365.1	Digestion)						Analyzed:	09/22/2005 By: INR
Method Blank			<0.0100	mg/L				0.0100
Laboratory Control Sample		0.400	0.420	mg/L	105	90-110		0.0100
2C Batch: 0508996 (365.1	Digestion)				<u></u>		Analyzed:	09/27/2005 By: INR
Method Blank			<0.0100	mg/L			_	0.0100
Laboratory Control Sample		0.400	0.419	mg/L	105	90-110		0.0100
Analyte:	Residue, Dissol	ved @ 180	° C/USEPA-16	0.1				
QC Batch: 0509339 (Gene	ral Inorganic Prep)						Analyzed:	10/03/2005 By: GEH
Method Blank	<u> </u>		<50	mg/L				50
Laboratory Control Sample		200	198	mg/L	99	0-200		50
Laboratory Control Sample		1000	972	mg/L	97	0-200		50
Laboratory Control Sample		1000	996	mg/L	100	0-200		50
Laboratory Control Sample		200	208	mg/L	104	0-200		50
QC Batch: 0509024 (Gene	ral Inorganic Prep)						Analyzed:	09/22/2005 By: GEH
Method Blank			<2	mg/L				2

Continued on next page

Page 38 of 42



# Physical/Chemical Parameters by EPA/APHA/ASTM Methods (Continued)

Analyte: Residue, Dissolved @ 180° C/USEPA-160.1 (Continued)  QC Batch: 0509024 (Continued) (General Inorganic Prep) Laboratory Control Sample 1000 968 mg/L 97 0-200 50 Laboratory Control Sample 200 198 mg/L 99 0-200 50  QC Batch: 0509144 (General Inorganic Prep)  QC Batch: 0509144 (General Inorganic Prep)  Analyzed: 09/27/2005 By: GEH  Method Blank Laboratory Control Sample 200 194 mg/L 97 0-200 50  Analyte: Sulfate/USEPA-375.4  QC Batch: 0509268 (General Inorganic Prep)  Method Blank Salfate (Joseph Joseph		Sample Conc.	Spike Qty.	Donalit	Hoit	Spike % Rec.	Control Limits	RPD	RPD Limits RL	
C Batch: 0509024 (Continued) (General Inorganic Prep)	С Туре			Result	Unit			N D	,,,,,	
Separation   Sep	Analyte:	Residue, Diss	olved @ 180	° C/USEPA-1	60.1 (Continue	ed)				
Analyzed	 QC Batch: 0509024 (Cont	inued) (General In	organic Prep)					Analyzed:		By: GEH
Analyzed	Laboratory Control Sample		1000	968	mg/L	97	0-200			
Method Blank	Laboratory Control Sample		200	198	mg/L	99	0-200		50	
Method Blank	OC Batch: 0509144 (Gene	eral Inorganic Prep						Analyzed:	09/27/2005	By: GEH
Analyte: Sulfate/USEPA-375.4  QC Batch: 0509268 (General Inorganic Prep)  Method Blank Laboratory Control Sample  23.8  QC Batch: 0509157 (General Inorganic Prep)  Method Blank Laboratory Control Sample  23.8  QC Batch: 0509157 (General Inorganic Prep)  Method Blank Laboratory Control Sample  23.8  QC Batch: 0509157 (General Inorganic Prep)  Method Blank Laboratory Control Sample  23.8  QC Batch: 0509157 (General Inorganic Prep)  Method Blank Laboratory Control Sample  23.8  QC Batch: 0509157 (General Inorganic Prep)  Method Blank Laboratory Control Sample  23.8  QC Batch: 0509728 (Method-Specific Preparation)  Method Blank  4.10  Mg/L  QC Batch: 0509192 (Method-Specific Preparation)  QC Batch: 0509192 (Method-Specific Preparation)  Method Blank  4.10  Mg/L  QC Batch: 0509192 (Method-Specific Preparation)  Method Blank  4.10  Mg/L  Analyzed: 09/20/2005  Mg/L  Analyzed: 09/20/2005  Mg/L  Analyzed: 09/20/2005  Mg/L  Analyzed: 09/26/2005  Mg/L				<2	mg/L		.,		2	
Analyte: Sulfate/USEPA-375.4  QC Batch: 0509268 (General Inorganic Prep)	Laboratory Control Sample		200	194	mg/L	97	0-200		50	
QC Batch: 0509268 (General Inorganic Prep)         Analyzed: 10/03/2005         By: JLB           Method Blank         < 5.0	Laboratory Control Sample		1000	928	mg/L	93	0-200		50	
Method Blank	Analyte:	Sulfate/USEP/	<b>A-375.4</b>							
Column	OC Batch: 0509268 (Gene	eral Inorganic Prep	——· · -					Analyzed:	10/03/2005	By: JLB
QC Batch: 0509157 (General Inorganic Prep)  Method Blank Laboratory Control Sample  23.8  Analyte: Sulfide/USEPA-376.1  QC Batch: 0509728 (Method-Specific Preparation)  Method Blank Laboratory Control Sample  13.2  QC Batch: 0509192 (Method-Specific Preparation)  Method Blank Laboratory Control Sample  13.2  Analyzed: 09/20/2005  Method Blank Laboratory Control Sample  13.0  Method Blank  41.0  Method Blank Analyzed: 09/20/2005  Method Blank Analyzed: 09/26/2005	Method Blank			<5.0	mg/L				5.0	
Method Blank	Laboratory Control Sample		23.8	23.7	mg/L	100	85-113			
Analyte: Sulfide/USEPA-376.1  QC Batch: 0509728 (Method-Specific Preparation)  Method Blank Laboratory Control Sample  13.2  QC Batch: 0509192 (Method-Specific Preparation)  QC Batch: 0509192 (Method-Specific Preparation)  Method Blank Analyzed: 09/20/2005  Method Blank Analyzed: 09/26/2005	QC Batch: 0509157 (Gen	eral Inorganic Prep	 ))					Analyzed:	09/28/2005	By: JLB
Analyte: Sulfide/USEPA-376.1  QC Batch: 0509728 (Method-Specific Preparation)  Method Blank Laboratory Control Sample  13.2  QC Batch: 0509192 (Method-Specific Preparation)  Method Blank  41.0  Method Specific Preparation)  QC Batch: 0509311 (Method-Specific Preparation)  Analyzed: 09/20/2005 By: JSS  Method Blank  41.0  Met	Method Blank			<2.0	mg/L				2.0	
QC Batch: 0509728 (Method-Specific Preparation)       Analyzed: 10/03/2005 By: JSS         Method Blank       < 1.0	Laboratory Control Sample		23.8	23.7	mg/L	100	85-113			
Method Blank         <1.0         mg/L         1.0           Laboratory Control Sample         13.2         13.0         mg/L         98         80-120         1.0           QC Batch: 0509192 (Method-Specific Preparation)         Analyzed: 09/20/2005         By: JSS           Method Blank         <1.0	Analyte:	Sulfide/USEP/	A-376.1	_						
Method Blank       < 1.0	QC Batch: 0509728 (Meti	hod-Specific Prepa	ration)					Analyzed:	10/03/2005	By: JSS
QC Batch: 0509192 (Method-Specific Preparation)       Analyzed: 09/20/2005 By: JSS         Method Blank       < 1.0 mg/L				<1.0	mg/L				1.0	
Method Blank         <1.0         mg/L         1.0           Laboratory Control Sample         11.6         11.0         mg/L         95         80-120         1.0           QC Batch: 0509311 (Method-Specific Preparation)         Analyzed: 09/26/2005         By: JSS           Method Blank         <1.0	Laboratory Control Sample		13.2	13.0	mg/L	98	80-120		1.0	
Method Blank         <1.0         mg/L         1.0           Laboratory Control Sample         11.6         11.0         mg/L         95         80-120         1.0           QC Batch: 0509311 (Method-Specific Preparation)         Analyzed: 09/26/2005 By: JSS           Method Blank         <1.0	QC Batch: 0509192 (Met	hod-Specific Prepa	ration)					Analyzed:		By: JSS
QC Batch: 0509311 (Method-Specific Preparation)  Analyzed: 09/26/2005 By: JSS  Method Blank  <1.0 mg/L  1.0  1.0				<1.0	mg/L					
Method Blank <1.0 mg/L 1.0	Laboratory Control Sample		11.6	11.0	mg/L	95 	80-120		1.0	
Method Blank <1.0 mg/L 1.0	QC Batch: 0509311 (Met	hod-Specific Prepa	ration)		_			Analyzed:		By: JSS
Laboratory Control Sample 13.6 <b>13.8</b> mg/L 101 80-120 <b>1.0</b>				<1.0	mg/L		•		1.0	
	Laboratory Control Sample		13.6	13.8	mg/L	101	B0-120		1.0	



#### STATEMENT OF DATA QUALIFICATIONS

#### Dissolved Metals by EPA 6000/7000 Series Methods

Qualification: Analyte detected in the method blank

> Analysis: USEPA-6020

> > Zinc 0508945-BS1 Zinc 0508945-MS1 Zinc

0508945-MSD1 Zinc 0508945-PS1

Zinc Sample/Analyte: 0509312-01 05EA-107-60-114.8

The CRL for Potassium fell outside of the 50-150% window. Qualification:

USEPA-6010B Analysis: Potassium 5092802-CRL1

The % difference in results between the sample and a serial dilution of the sample exceeded the control Qualification:

limit. Sample matrix interference is suspected and the reported result is considered estimated.

Analysis: USEPA-6020

Barium Sample/Analyte: 0509374-01 04EA-084

The % difference between the values of the isotopes monitored for this analyte exceeded 25%; the lower Qualification:

of the two results has been reported.

USEPA-6020

Analysis: Copper Sample/Analyte: 0509374-01 04EA-084

0509374-01 04EA-084 Selenium Copper 0509453-02 Blind Dup.-F Selenium 0509453-02 Blind Dup.-F Selenium 0509453-04 Field Blank-F Copper

0509454-02 04-EA-084-817-981-2F Selenium 0509454-02 04-EA-084-817-981-2F

This analyte was not present in this sample at a concentration greater than 100 times the MDL, therefore Qualification:

serial dilution is not required.

Analysis: USEPA-6020

Arsenic Sample/Analyte: 0509374-01 04EA-084

Molybdenum 0509374-01 04EA-084 Nickel 0509374-01 04EA-084

Zinc 0509374-01 04EA-084

Qualification: The RL for this analyte has been elevated due to sample matrix interference.

USEPA-6020 Analysis:

Cadmium Sample/Analyte: 0509374-01 04EA-084

Cadmium 0509453-02 Blind Dup.-F

Cadmium 0509454-02 04-EA-084-817-981-2F



#### STATEMENT OF DATA QUALIFICATIONS

#### Total Metals by EPA 6000/7000 Series Methods

Qualification:

The % difference between the values of the isotopes monitored for this analyte exceeded 25%; the lower

of the two results has been reported.

Analysis:

USEPA-6020

Sample/Analyte:

0509374-01 04EA-084

Copper

0509374-01 04EA-084

Selenium

0509453-03 Blind Dup. U

Copper

Copper

Selenium

Qualification:

This analyte was not present in this sample at a concentration greater than 50 times the MDL, therefore

serial dilution is not required.

Analysis:

USEPA-6010B

Sample/Analyte:

0509374-01 04EA-084

Lithium

Qualification:

The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample result is

considered estimated.

Analysis:

USEPA-6010B

Sample/Analyte:

 Aluminum

Cobalt

Oualification:

The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the

same analyte was greater than or equal to 4 times the spiked amount; the non-spiked sample result is not

qualified.

Analysis:

USEPA-6010B

Sample/Analyte:

0509374-01 04EA-084

Boron

0509374-01 04EA-084

Calcium

0509374-01 04EA-084

Iron

0509374-01 04EA-084

Magnesium

Qualification:

Matrix QC results are not available due to sample dilution.

Analysis:

USEPA-6010B

Sample/Analyte:

0509374-01 04EA-084

Sodium

0509374-01 04EA-084

Strontium

Qualification:

The RL for this analyte has been elevated due to sample matrix interference.

Analysis:

USEPA-6020

Sample/Analyte:

0509374-01 04EA-084

Cadmium

0509453-03 Blind Dup. U

Cadmium

0509454-03 04EA-084-817-2U

Cadmium



### STATEMENT OF DATA QUALIFICATIONS

## Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Qualification:

The EPA hold time for analysis was exceeded and the sample result(s) are considered estimated.

Analysis:

USEPA-353.2

Sample/Analyte:

0509300-01 05EA-107-320-374.8

Nitrogen, Nitrate



October 13, 2005

Golder Associates, Inc. Attn.: Scott H. Miller, P.G. 44 Union Blvd., Suite 300 Lakewood, CO 80228

RE: Brooks Rand Project: NJC003; Tracking #: 05BR1391

Client Project: Eagle Bedrock Pump Test, 053-2362

Dear Mr. Miller:

This report is for the mercury analysis of one (1) water sample collected on 9/18/05 and was received at Brooks Rand LLC (BRL) on 9/20/05. The sample has been assigned the BRL internal tracking number 05BR1391.

These samples were received, stored, prepared and analyzed according to BRL standard operating procedures (SOPs) and EPA Method 1631E. All results were blank corrected, as outlined in the calculations section of EPA Method 1631E. All QA criteria were met and no qualification of the data was required. BRL certifies that the reported test results meet all requirements of NELAC. BRL is a NELAC Accredited laboratory (NYS ELAP ID 11688).

If there are any questions please feel free to contact us.

Sincerely,

Mariah Berry

**Project Coordinator** 

mariah@brooksrand.com

Mariah Berry

Elizabeth Madonick
Project Manager

elizabeth@brooksrand.com

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

3958 6th Avenue NW

Seattle, WA 98107

Tel: 206-632-6206

Fax: 206-632-6017

Summary of Results for

Golder Associates

Contact: Scott H.

Miller, P.G.

44 Union Blvd, Suite 300

Lakewood CO Tel: (303) 980-0540

80228

Lab Project # NJC003

Lab Tracking # 05BR1391

Verbal

EAM 9/13/05

BRL

Client Project ID

Eagle Bedrock Pump Tes

# Sample/Sampling/Receiving Info

Golder Associates

Sampling Date

Sample Number

Receiving Date 9/20/2005

Identification 05EA-107-320-374.8

Sample

9/18/2005

05BR1391

Thursday, October 13, 2005

Elizabet Modnick

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

3958 6th Avenue NW Seattle, WA 98107

Tel: 206-632-6206

Fax: 206-632-6017

Lab Project # Lab Tracking #

NJC003 05BR1391

Verbal

Client Project ID

Miller, P.G.

44 Union Blvd, Suite 300 co

Summary of Results for

Golder Associates

Contact: Scott H.

Lakewood C Tel: (303) 980-0540

80228

EAM 9/13/05

Eagle Bedrock Pump Tes

Hg, dissolved

Sample

**BRL Number** 

Preparation date

Analysis date

Batch #

Result

Units

Qualifier (Q)

Identification 05EA-107-320-374.8

05BR1391 - 1

9/27/2005

9/29/2005

05-0734

3.510

ng/L

Thursday, October 13, 2005

Elizabel Modmes

Seattle, WA 98107 U.S.A.

206.632.6206

#### **QUALITY ASSURANCE REPORT**

Batch:

05-0734

Analysis:

Mercury by EPA 1631.E (CVAFS)

Tracking:

05BR1388, 05BR1400, 05BR1391, 05BR1405, 05BR1392 & 05BR1374

Project:

LAF001, LOV001, NJC003, TEK001 & USG007

Matrix:

Water

Batch Size:

20 samples

Analysis Date:

September 29, 2005

- 1 SAMPLE PREPARATION Acceptable
- 2 CALIBRATION Acceptable
- 3 CALIBRATION VERIFICATION Acceptable
- 4 QUALITY CONTROL SAMPLES Acceptable
- 5 BLANKS Acceptable
- 6 METHOD DUPLICATE ANALYSIS Not Applicable
- 7 SPIKE / SPIKE DUPLICATE ANALYSIS Acceptable
- 8 LIMITS OF DETECTION Acceptable, see section 9
- 9 OVERALL DATA QUALITY Acceptable

Sample results have been evaluated using sample specific or client requested detection limits that may have been adjusted to account for sample aliquot size. Refer to the QA Summary for detection limits for affected samples.

No qualification of the data is required based on this review.

I certify that, to the best of my knowledge and belief, the data are reported as true and accurate. The Laboratory Director, or her designee, has authorized release of data contained in this Quality Assurance Report as verified by the following signature(s).

Frank McFarland
Quality Assurance Manager

10/11/03

## BRL QA Summary

Batch #: 05-0734

Method #: EPA 1631.E

Analyte: Hg

Matrix: Water

BIAS	C	riteria: Recove	ery = 77-123%
Continuing (	Calibration Ve	rification (CC	(V)
QCS ID	Certified Value ng/L	Measured Value ng/L	Recovery %
CCV1	5.00	4.95	99.0%
CCV2	5.00	5.05	101.1%
CCV3	5.00	5:07	101.4%
CCV4	5.00	5.00	99.9%
CCV5	5.00	5.01	100.1%
CCV6	5,00	4.99	99.9%

BIAS Independent		riteria: Recove erification (IC	
QCS ID	Certified Value ng/L	Measured Value ng/L	Recovery %
ICV*	16.01	15.36	95.9%

<sup>\*</sup> Preparation of the CRM NIST 1641d.

BIAS Matrix Spikes	/Matriv Snik		•	5%, RPD<24%		•		
Matrix Spikes	THE IX DOIN	c Duplicates (	Matrix Spike	!	Ma	trix Spike Dup	licate	······································
Sample ID	Sample Value ng/L	Spiked Value ng/L	Measured Value ng/L	MS Recovery	Spiked Value ng/L	Measured Value ng/L	MSD Recovery %	Duplicate RPD
05BR1388-1	1.15	4.01	5.14	99.6%	4.01	5.36	105.0%	4.2%
05BR1374-7	0.18	1.01	1.35	115.3%	1.01	1.23	103.3%	9.4%

0.5% BrCl M	lethod Blanks	(MB)	Criterion: .	MB < 0.5  ng/L	Detection Limits			
MB1	MB2	MB3	Average	StDev	MB MDL	MB PQL		
ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L		
0.04	0.05	0.03	0.04	0.01	0.10	0.25		

0.5% BrCl MB analyzed in triplicate.

Average MB result multiplied by appropriate factor to produce correction factor for each sample preservation BrCl level.

Sample Specific	Sample Specific Detection Limits								
Sample MDL PQL									
ID	ng/L	ng/L							
05BR1388-1	0.20	0.50							

9 hybrid Molenuth Project Manager

10/7/2005

# **Brooks Rand LLC Sample Receiving Log**

				Due Date:	10/18/2005	
Tracking #	05BR1391		Rec	eiving Date:	9/20/2005	
			Rece	eiving Time:	9:55 AM	
Customer:	Golder Associates				<b>.</b>	
Contact:	Scott Miller		Lo	gged-in by:	Stuart Brov	VΠ
Project Ref. #:	NJC003		L	_og-in Date:	9/20/2005	
Collection Date	9/18/2005		L	.og-in Time:	10:26 AM	
QA Level	Standard		Airb	ill present?	Yes	
				Airbil!#	792530117	439
Sample Condition	Intact			Carrier:	Fedex	
Shipping container intact?	Yes					
	Cooles	C	ustody se	al present?	Yes	
Shipping container type:	Cooler		Custody :	seal intact?	Yes	
Shipping container temp:	6.2 C		CO	C Present?	Yes	
Shipping container coolant:	Ice		CO	C Number:	N/A	
Sample preservation:	none	Ar	alvsis red	uest form?	Yes	
Acid lab # Hg Concentration:			•	tag agree?	No	
Sample storage area:	Cabinet #5	See SOW	No	See Proje	ct Manage	No
,		See Mem	No	See La	ıb Manage	No
Sample Turnaround Time:		Consult MSDS	No	See C	ontract Inf	No
Contract Turnaround Time:	28 days					

Comments:

Sample Tag#	Container#	Size:	pH Matrix/Su	b-Matrix Com	ments:
05EA-107-320- 374.8	FPE 05-215	250 mL Bottle	Wate	er,	
/ Method:	Hg, dissolved	EPA 1631		•	
			Mind	1. Louis 11	edated 10/3/0
	05EA-107-320- 374.8	05EA-107-320- FPE 05-215 374.8	05EA-107-320- FPE 05-215 250 mL Bottle 374.8	05EA-107-320- FPE 05-215 250 mL Bottle Wat 374.8  / Method: Hg, dissolved EPA 1631	05EA-107-320- FPE 05-215 250 mL Bottle Water, 374.8

# **Brooks Rand LLC Chain Of Custody Record**

Page\_\_/\_of\_\_\_\_

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Cont					PO															e NW		
Addr	ess: 44 Unions			300	Sa	mplei	's sig	ınatı	ıres:		M	utin	11/2	سامیا					/A 98			
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													<u> </u>	V)			ax:			2-601		
Phor	ne#: 303-980 -	05	40		Clie	ent pi	roject	<u> ID:</u>	_0	53.	23	62									nd.com	
Fax					BR	L pro	ject I	D: ∧	JC	DD	<u>3</u>					V	vww.	.broo	ksrar	nd.con	1	
For E	IRL use only Cooler.	temp (	°C);		Custo	ody se	als p	reser	u? (	Y/N	)   C	usto	dy sea	ls inta	ct? (	Y/1	<i>i)</i>	Date.			initials:	
	2 A 2 A 2 A 2 A 2 A 2 A 2 A 2 A 2 A 2 A	Colle	ction	М	iscell	aneou	ıs	Fi	eld P	rese	rvatíc	on		An	alyse	s re	quire	ď		С	omments	
	Sample ID	Date	Time	Sampler (initials)	Matrix type	# of containers	Sample field filtered ,Y/N	Unpreserved or ice only	HNO3	HCI	BrCi	Other (specify)	Hg (1631)									
1	05EA-107-320-374.8	9/18/05	1140	M52	W	1	1	X			L		/	-  -								
2	·				ļ		ļ	<b> </b>	ļ		<u> </u>	<u> </u>							<b>  </b>			
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White: LAB COPY

Yellow: CUSTOMER COPY



October 20, 2005

Golder Associates, Inc. Attn.: Scott H. Miller, P.G. 44 Union Blvd., Suite 300 Lakewood, CO 80228

RE:

Brooks Rand Project: NJC003; Tracking #: 05BR1405

Client Project: Eagle Bedrock Pump Test, 053-2362

Dear Mr. Miller:

This report is for the mercury analysis of one (1) water sample collected on 9/20/05 and was received at Brooks Rand LLC (BRL) on 9/22/05. The sample has been assigned the BRL internal tracking number 05BR1405.

The sample was received, stored, prepared and analyzed according to BRL standard operating procedures (SOPs) and EPA Method 1631E. All results were blank corrected, as outlined in the calculations section of EPA Method 1631E. All QA criteria were met and no qualification of the data was required. BRL certifies that the reported test results meet all requirements of NELAC. BRL is a NELAC Accredited laboratory (NYS ELAP ID 11688).

If there are any questions please feel free to contact us.

Sincerely,

Mariah Berry

**Project Coordinator** 

mariah@brooksrand.com

Elizabeth Madonick

Project Manager

elizabeth@brooksrand.com

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

3958 6th Avenue NW Seattle, WA 98107

Tel: 206-632-6206

Fax: 206-632-6017

NJC003

Lab Project #

Lab Tracking # 05BR1405

Summary of Results for

Golder Associates

Contact: Scott H.

44 Union Blvd. Suite 300

Lakewood

Tel: (303) 980-0540

co

80228

Quote

NJC003b

BRL

Miller, P.G.

Client Project ID

Eagle Bedrock Pump Test

Sample/Sampling/Receiving Info

Golder Associates

Sample

Identification 05EA-107-60-114.8 **Sampling Date** 9/20/2005

Sample Number 05BR1405

Receiving Date 9/22/2005

Elizabet M. donich

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

Lab Tracking # 05BR1405

3958 6th Avenue NW

Seattle, WA 98107 Tel: 206-632-6206

Lab Project #

Fax: 206-632-6017

NJC003

Summary of Results for

Golder Associates

Contact: Scott H.

Miller, P.G.

44 Union Blvd, Suite 300 Lakewood CO

80228

Tel: (303) 980-0540

Quote

NJC003b

Client Project ID

Eagle Bedrock Pump Test

Hg, dissolved

Sample Identification

**BRL Number** 

Preparation date

Analysis date

Batch #

Result

Units

Qualifier (Q)

05EA-107-60-114.8

05BR1405 - 1

9/27/2005

9/29/2005

05-0734

0.810

ng/L

Tuesday, October 25, 2005

- Elizabe AM Sourch

### QUALITY ASSURANCE REPORT

Batch:

05-0734

Analysis:

Mercury by EPA 1631.E (CVAFS)

Tracking:

05BR1388, 05BR1400, 05BR1391, 05BR1405, 05BR1392 & 05BR13745

Project:

LAF001, LOV001, NJC003, TEK001 & USG006

Matrix:

Water

Batch Size:

20 samples

Analysis Date:

September 29, 2005

1 SAMPLE PREPARATION - Acceptable

- 2 CALIBRATION Acceptable
- 3 CALIBRATION VERIFICATION Acceptable
- 4 QUALITY CONTROL SAMPLES Acceptable
- 5 BLANKS Acceptable
- 6 METHOD DUPLICATE ANALYSIS Not Applicable
- 7 SPIKE / SPIKE DUPLICATE ANALYSIS Acceptable
- 8 LIMITS OF DETECTION Acceptable, see section 9
- 9 OVERALL DATA QUALITY Acceptable

Sample results have been evaluated using sample specific or client requested detection limits that may have been adjusted to account for sample aliquot size. Refer to the QA Summary for detection limits for affected samples.

No qualification of the data is required based on this review.

I certify that, to the best of my knowledge and belief, the data are reported as true and accurate. The Laboratory Director, or her designee, has authorized release of data contained in this Quality Assurance Report as verified by the following signature(s).

Tressa K. Pearson-Franks Quality Assurance Associate

50 10.7.0

Batch #: 05-0734

Method #: EPA 1631.E

Analyte: Hg

Matrix: Water

BIAS		riteria: Recovi	•
Continuing C	Calibration Ve	rification (CC	(V)
OCS ID	Certified Value ng/L	Measured Value ng/L	Recovery %
CCV1	5.00	4.95	99.0%
CCV2	5.00	5.05	101.1%
CCV3	5.00	5.07	101.4%
CCV4	5.00	5.00	99.9%
CCV5	5.00	5.01	100.1%
CCV6	5.00	4.99	99.9%

BIAS Independent		riteria: Recove erification (IC	=
QCS ID	Certified Value ng/L	Measured Value ng/L	Recovery %
ICV*	16.01	15.36	95.9%

<sup>\*</sup> Preparation of the CRM NIST 1641d.

BIAS			•	5%, RPD<24%				
Matrix Spikes	/Matrix Spik	e Duplicates (	MS/MSD) Matrix Spike		Mai	trix Spike Dup.	licate	
Sample ID	Sample Value ng/L	Spiked Value ng/L	Measured Value ng/L	MS Recovery	Spiked Value ng/L	Measured Value ng/L	MSD Recovery %	Duplicate RPD
05BR1388-1	1.15	4.01	5.14	99.6%	4.01	5.36	105.0%	4.2%
05BR1374-7	0.18	1.01	1.35	115.3%	1.01	1.23	103.3%	9.4%

0.5% BrCl Method Blanks (MB)			Criterion: MB < 0.5 ng/L		Detection Limits	
MB1	MB2	MB3	Average	StDev	MB MDL	MB PQL
ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
0.04	0.05	0.03	0.04	0.01	0.10	0.25

0.5% BrCl MB analyzed in triplicate.

Average MB result multiplied by appropriate factor to produce correction factor for each sample preservation BrCl level.

Sample Specific Detection Limits						
Sample	MDL	PQL				
ID	ng/L	ng/L				
05BR1388-1	0.20	0.50				

Elipbel M. Swelle Project Manager

10/7/2005

## **Brooks Rand LLC Sample Receiving Log**

Due Date: 10/20/2005 Tracking # 05BR1405 9/22/2005 Receiving Date: Receiving Time: 8:19 AM **Golder Associates** Customer: Logged-in by: Jennell Simpson Scott Miller Contact: Log-in Date: 9/22/2005 Project Ref. #: NJC003 Log-in Time: 10:24 AM Collection Date 9/20/05 Airbili present? Yes Standard QA Level 852819500838 Airbill # Sample Condition Intact Carrier: Fed Ex Shipping container intact? Custody seal present? Yes Shipping container type: Cooler Custody seal intact? Yes Ambient Shipping container temp: COC Present? Yes None Shipping container coolant: COC Number: Sample preservation: Analysis request form? Acid lab # COC/Sample tag agree? Hg Concentration:

Sample Turnaround Time:

Cabinet #1

Contract Turnaround Time: 28 days

Sample storage area:

Comments:

Lab ID: Sample Tag # Container # Size: pH Matrix/Sub-Matrix Comments:

1 05EA-107-60-114.8 FPE #05-215 250 mL Bottle Water,

Analysis / Method: Hg, dissolved EPA 1631

See SOW

See Mem

Consult MSDS

Νo

See Project Manage

See Lab Manage

See Contract Inf

No

No

No

Music Residual de la 18/3/85 gampie Custodian signature Date

Brooks Rand LLC Chain Of Custon	dy Record		Page_	of		
A STATE OF THE PARTY OF THE PAR	Email address:		Ship to: Brooks Ra	Ship to: Brooks Rand LLC		
Client: COCARR / KENNICOT		3-2362	3958 6 <sup>th</sup> Av	3958 6 <sup>th</sup> Avenue NW		
Contact: Scott MILLER	Compler's signatu	1708'	Seattle, W	Seattle, WA 98107		
Address: 44 Union BLND. STE300	Sampler's signatu	1100.	Phone: 206	Phone: 206-632-6206		
LAKE WOOD, CO 80228	Fax COC for rece			Fax: 206-632-6017		
	Client project ID:	06.5-4545	Email: brid	Email: brl@brooksrand.com		
Phone #: 303-980-0540	Client project ID:	17/202		www.brooksrand.com		
	BRL project ID: /	V) ( 00 3		Infact? (V/N) Date: 4/22/05 Initials?		
For BRL use only Cooler temp (*C): Ambund	Custody seals preser	nt?(Y/N) Custod	dy seals illiaction (V/N) Date.	Alama Alamand		
Collection M	iscellaneous Fi	ield Preservation	Analyses required	Comments		
Date Ol eldwes Time Sampler (initials)	Matrix type # of containers Sample field filtered ,Y/N Unpreserved or ice only	HNO <sub>3</sub> HCI BrCi Other (specify)	Mg 1631			
1 DSEA-107-60-114.8 9/ados 0915 MSL	WILYX	<del> </del>				
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9	<del>                                     </del>	<del></del>				
10			# of co	oolers:		
Shipping carrier: Fanks	Dal					

Date 9/21/05 Time: /300

Date:

Time:

Relinquished by:

Relinquished by:

White: LAB COPY

Received by:

Yellow: CUSTOMER COPY

Date:

Time:



October 20, 2005

Golder Associates, Inc. Attn.: Scott H. Miller, P.G. 44 Union Blvd., Suite 300 Lakewood, CO 80228

RE:

Brooks Rand Project: NJC003; Tracking #: 05BR1414 Client Project: Eagle Bedrock Pump Test, 053-2362

Dear Mr. Miller:

This report is for the total and dissolved mercury (Hg) analysis of two (2) water samples collected on 9/23/05 and received at Brooks Rand LLC (BRL) on 9/24/05. The samples have been assigned the BRL internal tracking number 05BR1414 and were received, stored, prepared and analyzed according to BRL standard operating procedures (SOPs) and EPA Method 1631E.

During analysis of batch 05-0760, the initial calibration of the instrument failed due to the high recovery of the 100-pg Hg standard. The instrument was recalibrated and all acceptance criteria were met. No client samples were affected.

All results were blank corrected, as outlined in the calculations section of EPA Method 1631E. All QA criteria were met and no qualification of the data was required. BRL certifies that the reported test results meet all requirements of NELAC. BRL is a NELAC Accredited laboratory (NYS ELAP ID 11688).

If there are any questions please feel free to contact us.

Sincerely,

Mariah Berry

**Project Coordinator** 

mariah@brooksrand.com

Elizabeth Madonick

Project Manager

elizabeth@brooksrand.com

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

3958 6th Avenue NW

Seattle, WA 98107 Tel: 206-632-6206

Lab Project #

Fax: 206-632-6017

NJC003

Lab Tracking # 05BR1414

Summary of Results for

Golder Associates

Contact: Scott H.

Miller, P.G. 80228

44 Union Blvd. Suite 300 CO

Lakewood ( Tel: (303) 980-0540

Quote

NJC003b

BRL

Client Project ID

Eagle Bedrock Pump Test

Sample/Sampling/Receiving Info

Golder Associates

Sample

Identification 04EA-084-F 04EA-084-U

Sampling Date

9/23/05 9/23/05

Sample Number 05BR1414 - 1 05BR1414

Receiving Date

9/24/2005 9/24/2005

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

3958 6th Avenue NW Seattle, WA 98107

Tel: 206-632-6206

Lab Project #

Lab Tracking #

Fax: 206-632-6017

05BR1414

Summary of Results for

Golder Associates

Contact: Scott H.

Miller, P.G.

44 Union Blvd. Suite 300

Lakewood Tel: (303) 980-0540

80228

NJC003

Quote Client Project ID NJC003b

Eagle Bedrock Pump Test

Hg

Sample Identification

**BRL Number** 

Preparation

date

Analysis date

Batch #

Result

Units ng/L

Qualifier (Q)

04EA-084-U

05BR1414 - 2

10/5/2005

10/17/2005

05-0760

0.600

Tuesday, October 25, 2005

Elyebel M. dwek

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

3958 6th Avenue NW Seattle, WA 98107

Tel: 206-632-6206

Fax: 206-632-6017

Summary of Results for

Golder Associates

Contact: Scott H.

Miller, P.G.

44 Union Blvd. Suite 300

Lakewood Tel: (303) 980-0540

co

Lab Project # NJC003 05BR1414 Lab Tracking #

Quote

NJC003b

Client Project ID

Eagle Bedrock Pump Test

Hg, dissolved

Sample Identification

**BRL Number** 

Preparation date

Analysis date

Batch #

80228

Result

Units

Qualifier (Q)

04EA-084-F

05BR1414 - 1

10/5/2005

10/17/2005

05-0760

0.440

лg/L

### QUALITY ASSURANCE REPORT

Batch:

05-0760

Analysis:

Mercury by EPA 1631.E (CVAFS)

Tracking:

05BR1425, 05BR1417, 05BR1411, 05BR1414 & 05BR1413

Project:

BSK001, CFM001, DWQ002, NJC003 & URS014

Matrix:

Water

Batch Size:

20 samples

Analysis Date:

October 17, 2005

- 1 SAMPLE PREPARATION Acceptable
- 2 CALIBRATION Acceptable, see section 9
- 3 CALIBRATION VERIFICATION Acceptable
- 4 OUALITY CONTROL SAMPLES Acceptable
- 5 BLANKS Acceptable, see section 9
- 6 METHOD DUPLICATE ANALYSIS Not Applicable
- 7 SPIKE / SPIKE DUPLICATE ANALYSIS Acceptable
- 8 LIMITS OF DETECTION Acceptable, see section 9
- 9 OVERALL DATA QUALITY Acceptable

Initial calibration failed due to the unacceptable recovery of the 100 pg standard. The instrument was recalibrated, and all criteria were met. No client samples were affected.

Due to elevated calibration blanks, the method blanks analyzed with this batch produced negative results. The absolute value of the average method blank result was less than the MDL. The true value was used to blank correct sample results. The use of a negative value for blank correction ensures sample results are not overcorrected by the high calibration blank result that may have declined after repeated use of the bubblers.

Sample results have been evaluated using sample specific or client requested detection limits that may have been adjusted to account for sample aliquot size. Refer to the QA Summary for detection limits for affected samples.

No qualification of the data is required based on this review.

I certify that, to the best of my knowledge and belief, the data are reported as true and accurate. The Laboratory Director, or her designee, has authorized release of data contained in this Quality Assurance Report as verified by the following signature(s).

Frank McFarland

Quality Assurance Manager

## BRL QA Summary

Batch #: 05-0760

Method #: EPA 1631.E

Analyte: Hg

Matrix: Water

BIAS Continuing C			ery = 77-123% (V)
QCS ID	Certified Value ng/L	Measured Value ng/L	Recovery %
CCV1	5.00	5.21	104.3%
CCV2	5.00	5.33	106.5%
CCV3	5.00	5.43	108.7%

BIAS	С	riteria: Recovi	ery = 85-115%
Independent	Calibration V	erification (IC	CV)
2	Certified	Measured	T .
	Value	Value	1
QCS ID	ng/L	ng/L	Recovery %
ICV*	16,01	17.28	107.9%

<sup>\*</sup> Preparation of the CRM NIST 1641d.

BIAS	-			5%, RPD<24%				
Matrix Spikes/	Matrix Spik	e Duplicates (	(MS/MSD)					
			Matrix Spike	?	Ma	trix Spike Dup	licate	
Sample ID	Sample Value ng/L	Spiked Value ng/L	Measured Value ng/L	MS Recovery	Spiked Value ng/L	Measured Value ng/L	MSD Recovery %	Duplicate RPD
05BR1413-28	2.20	6.04	9.32	117.8%	6.09	9.42	118.4%	1.1%
05BR1413-30	0.55	2.01	2.66	105.4%	2.02	2.76	109.3%	3.5%

0.5% BrCl M	ethod Blanks	(MB)	Criterion: A	MB < 0.5  ng/L	Detection Limits			
MB1	MB2	MB3	Average			MB PQL		
ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L		
0.02	-0.02	-0.02	-0.01	0.02	0.10	0.25		

0.5% BrCl MB analyzed in triplicate.

Average MB result multiplied by appropriate factor to produce correction factor for each sample preservation BrCl level.

Sample Specific Detection Limits								
Sample	MDL	PQL						
ID	ng/L	ng/L						
05BR1413-28	0.20	0.51						
05BR1413-36	0.10	0.26						
05BR1413-38	0.10	0.26						
05BR1414-1	0.10	0.26						
05BR1417-1	0.21	0.52						

Sample Specific Detection Limits									
Sample	MDL	PQL							
ID	ng/L	ng/L							
05BR1417-2	1.1	2.6							
05BR1417-3	0.20	0.51							
05BR1417-4	0.21	0.53							
05BR1417-5	0.10	0.26							
05BR1417-6	1.1	2.6							

Unelled Madernet

10/20/2005

### **Brooks Rand LLC Sample Receiving Log**

			10/22/2005			
Tracking #	05BR1414		Rec	eiving Date:	9/24/2005	
Customer:	Golder Associates		eiving Time:	10:15 AM		
Contact:	Scott Miller		gged-in by:	Joseph Ro	berts	
Project Ref. #:	NJC003		1	og-in Date:	9/24/2005	
Collection Date	9/23/05		.og-in Time:	11:26 AM		
QA Level	Standard		ill present?	Yes		
Sample Condition	Intact		Airbill#	853172916	3777	
Shipping container intact?	Yes		Camer:	FedEx		
Chinning anatoines type:	Cooler	C	ustody se	al present?	Yes	
Shipping container type:	Ambient		Custody :	seal intact?	Yes	
Shipping container temp:			CO	C Present?	Yes	
Shipping container coolant:	None		CO	C Number:	N/A	
Sample preservation:	None	An	alysis req	uest form?	Nσ	
Acid lab # Hg Concentration:		coc	/Sample	tag agree?	Yes	
Sample storage area:	Cabinet #1	See SOW	No	See Proje	ct Manage	No
,	•	See Mem	No	See La	b Manage	Ņο
Sample Turnaround Time:	•	Consult MSDS	No	See Co	ontract Inf	No
Contract Turnaround Time:	28 days					

Comments:

Lab ID:	Sample Tag #	Container#	Size:	pН	Matrix/Sub-Matrix	Comments:
1	04EA-084-F	FPE:05-215	250 mL Bottle		Water,	Sample was filtered by client.
Analysis	/ Method:	Hg, dissolved	EPA 163	31		
	04EA-084-U	FPE:05-215	250 mL Bottle		Water,	
Analysis	/ Method:	Hg	EPA 163	31		

Manak Dewy updall 10/3/05 Sample Cystodian signature Date

<b>Brooks Rand LLC</b>	Chain Of Custody	Record
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Contact: Scott Mice	ER				nler	s sig	natu	es:	<del>, , ,</del>							eatt	le, W	A 98	107	
Address: 44 Onion	Bin	10.50	£300	Sais	ipici	<u> </u>									F	hon			2-6206	
LAKEWOOL	1,00	802	Z8		COC	for	recei	nt co	onfir	mati	on?	(Ŷ) N	)			ax:			<u>2-6017</u>	
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Phone #: 303 - 982				BBI	nro	ect l	D: A	17	(1)	03					y	170			ıd.com	and the second of the second of the
Fax#: 303-985	·-20	<u>) &amp; 🤇</u>	76 S. S.	DIXL Destroys	- pro			.31/	7781	12	istor	ly seal	sinte	ct?/(	Y) N	11	Date	9/2	1/01	Initials: 🎉 🔃
For BRL use only Cooler	temp (*	C):4r.l.	wer	Custo	dy se	als pi		_					Military &	3944 V				/ 1	والمستوار	mments
	Colle	ction	М	iscella	neou	s	Fic	ld P	resei	vatio	n	-	An	aiys	es re	quire	u			
Sample ID	Date	Тіте	Sampler (Initials)	Matrix type	# of containers	Sample field filtered ,Y/N	Unpreserved or ice only	HNO3	HCI	BrCi	Other (specify)	Ng 1631								
				W	1	7	×					1						ļ		OBRA
1 04=4-084-F	13/05		17:51	4)		10/	又								<u> </u>	<b> </b>	<b>_</b>	<del> </del> '		NAROUNO
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White: LAB COPY

Yellow: CUSTOMER COPY



October 25, 2005

Golder Associates, Inc. Attn.: Scott H. Miller, P.G. 44 Union Blvd., Suite 300 Lakewood, CO 80228

RE:

Brooks Rand Project: NJC003; Tracking #: 05BR1469 Client Project: Eagle Bedrock Pump Test, 053-2362

Dear Mr. Miller:

This report is for the total and dissolved mercury (Hg) analysis of three (3) water samples collected on 9/29/05 and received at Brooks Rand LLC (BRL) on 9/30/05. These samples have been assigned the BRL internal tracking number 05BR1469.

The chain-of-custody (COC) form accompanying these samples indicated that samples "04EA-084-817-981-2FDUP" and "04EA-084-817-981-2UDUP" should be archived. These samples have also been assigned the BRL internal tracking number 05BR1469 and have not been included in this report.

All samples were received, stored, prepared and analyzed according to BRL standard operating procedures (SOPs) and EPA Method 1631E. All results were blank corrected, as outlined in the calculations section of EPA Method 1631E. Sample results below the method detection limit (MDL) were qualified "U" for non-detect and have been reported at the MDL. All QA criteria were met and no additional qualification of the data was required. BRL certifies that the reported test results meet all requirements of NELAC. BRL is a NELAC Accredited laboratory (NYS ELAP ID 11688).

If there are any questions, please feel free to contact us.

Sincerely,

Mariah Berry

Project Coordinator

mariah@brooksrand.com

Upberl Monick

Project Manager

elizabeth@brooksrand.com

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

3958 6th Avenue NW Seattle, WA 98107

Tel: 206-632-6206

Fax: 206-632-6017

Lab Project #

NJC003

05BR1469 Lab Tracking #

Summary of Results for

Golder Associates

Contact: Scott H.

Miller, P.G.

44 Union Blvd, Suite 300

Lakewood

80228

Tel: (303) 980-0540

NJC003b

Client Project ID

Quote

Eagle Bedrock Pump Test

# Sample/Sampling/Receiving Info

Golder Associates

BRL

Sample Identification Sampling Date 9/29/2005 Field Blank-F Blind DUP-F 9/29/2005 Blind DUP-W 9/29/2005 04EA084-817-981-2FDUP 9/29/2005 04EA-084-817-981-2WDUP 9/29/2005

Sample Number 05BR1469 05BR1469 - 2 05BR1469 05BR1469 05BR1469

Receiving Date 9/30/2005 9/30/2005 9/30/2005 9/30/2005 9/30/2005

Elijaber IM Somble

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

3958 6th Avenue NW Seattle, WA 98107

Tel: 206-632-6206

Fax: 206-632-6017

Lab Project #

NJC003

Lab Tracking # 05BR1469 Summary of Results for

Golder Associates

Contact: Scott H.

Miller, P.G.

44 Union Blvd, Suite 300

Lakewood C Tel: (303) 980-0540 CO

80228

Quote

NJC003b

Client Project ID

Eagle Bedrock Pump Test

Hg

Sample Identification

Blind DUP-W

**BRL Number** 05BR1469 - 3 Preparation date 10/17/2005

Analysis date 10/19/2005

Batch # 05-0815 Result 0.270 Units ng/L

Qualifier (Q)

Tuesday, October 25, 2005

Elizable Moderable

Brooks Rand LLC

Contact: Elizabeth Madonick

3958 6th Avenue NW

Seattle, WA 98107 Tel: 206-632-6206

Fax: 206-632-6017

Summary of Results for

Golder Associates

Contact: Scott H.

Miller, P.G.

44 Union Blvd. Suite 300

Lakewood ( Tel: (303) 980-0540

80228

NJC003 Lab Project # Lab Tracking # 05BR1469 Quote

NJC003b

Client Project ID

Eagle Bedrock Pump Test

Hg, dissolved

Sample Identification	BRL Number	Preparation date	Analysis date	Batch #	Result	Units	Qualifier (Q)
Field Blank-F	05BR1469 - 1	10/17/2005	10/19/2005	05-0815	0.100	ng/L	υ
Blind DUP-F	05BR1469 - 2	10/17/2005	10/19/2005	05-0815	0.100	ng/L	U

#### QUALITY ASSURANCE REPORT

Batch:

05-0815

Analysis:

Mercury by EPA 1631.E (CVAFS)

Tracking:

05BR1469, 05BR1483, 05BR1497, 05BR1498, & 05BR1520

Project:

NJC003, IDQ002, INT007, CIT002, & DWQ002

Matrix:

Water

Batch Size:

20 samples

Analysis Date:

October 19, 2005

- 1 SAMPLE PREPARATION Acceptable
- 2 CALIBRATION Acceptable
- 3 CALIBRATION VERIFICATION Acceptable.
- 4 QUALITY CONTROL SAMPLES Acceptable
- 5 BLANKS Acceptable
- 6 METHOD DUPLICATE ANALYSIS Not Applicable
- 7 SPIKE / SPIKE DUPLICATE ANALYSIS Acceptable
- 8 LIMITS OF DETECTION Acceptable, see section 9
- 9 OVERALL DATA QUALITY Acceptable

Sample results have been evaluated using sample specific or client requested detection limits that may have been adjusted to account for sample aliquot size. Refer to the QA Summary for detection limits for affected samples.

No qualification of the data is required based on this review.

I certify that, to the best of my knowledge and belief, the data are reported as true and accurate. The Laboratory Director, or her designee, has authorized release of data contained in this Quality Assurance Report as verified by the following signature(s).

Frank McFarland

10/21/0.5

Quality Assurance Manager

#### BRL QA Summary

Batch #: 05-0815

Method #: EPA 1631.E

Analyte: Hg

Matrix: Water

BIAS	С	riteria: Recove	ery = 77-123%							
Continuing Calibration Verification (CCV)										
	Certified Value									
QCS ID	ng/L	ng/L	Recovery %							
CCV1	5.00	5.08	101.7%							
CCV2	5.00	5.28	105.6%							
CCV3	5.00	5.21	104.1%							
CCV4	5.00	4.49	89.9%							
CCV5	5.00	5.24	104.7%							
CCV6	5.00	5.39	107.8%							

BIAS		riteria: Recove	
Independent	Calibration V	erification (IC	C <b>V</b> ) 1
	Certified	Measured	
	Value	Value	
QCS ID	ng/L	ng/L	Recovery %
ICV*	16.01	15.91	99.4%

<sup>\*</sup> Preparation of the CRM NIST 1641d.

BIAS Matrix Spikes	IAS Criteria: Recovery = 71-125%, RPD<24% Iatrix Spikes/Matrix Spike Duplicates (MS/MSD)							
I	<u> </u>		Matrix Spike		Ma	trix Spike Dup	licate	
Sample ID	Sample Value ng/L	Spiked Value ng/L	Measured Value ng/L	MS Recovery %	Spiked Value ng/L	Measured Value ng/L	MSD Recovery %	Duplicate RPD
05BR1469-3	0.27	1.98	2.60	117.5%	1.98	2.44	109.7%	6.4%
05BR1498-2	0.72	3.83	4.56	100.2%	3.74	4.58	103.4%	0.5%

1.0% BrCl M	0% BrCl Method Blanks (MB)			BrCl Method Blanks (MB) Criterion: $MB < 0.5 \text{ ng/L}$			Detection Limits	
MB1	MB2	MB3	Average	StDev	MB MDL	MB PQL		
ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L		
0.24	0.24	0.28	0.25	0.02	0.10	0.25		

1.0% BrCl MB analyzed in triplicate.

Average MB result multiplied by appropriate factor to produce correction factor for each sample preservation BrCl level,

Sample	MDL	PQL	
ID .	ng/L	ng/L	
05BR1483-6	2.0	5.0	
05BR1483-7	2.0	5.0	
05BR1483-8	2.0	5.0	

Sample Specific Detection Limits				
Sample	MDL	PQL		
ID	ng/L	ng/L		
05BR1483-9	2.0	5.0		
05BR1498-1	0.87	2.16		
05BR1498-2	0.19	0.47		

Hipbal Mdmik
Project Manager

10/21/2005

## **Brooks Rand LLC Sample Receiving Log**

				:Due Date:	10/28/2005	i
Tracking #	D5BR1469		Rec	eiving Date:	9/30/2005	
Customer:	North Jackson Company		Rec	eiving Time:	8:30 AM	
Contact:	Peter Sabee		Lo	igged-in by:	Stuart Brov	٧n
Project Ref. #:	NJC003			Log-in Date:	9/30/2005	
Collection Date	9/29/2005		1	_og-in Time:	11:17 AM	
QA Level	Standard		Airl	oill present?	Yes	
				Airbill#	853172916	869
Sample Condition	Intact			Carrier:	Fedex	
Shipping container intact?	Yes	_				
Shipping container type:	Cooler		•	al present?	Yes	
Shipping container temp:	ambient			seal intact?	Yes	
Shipping container coolant:	none		-	C Present?	Yes	
Shipping container codiant.	TIONS		23	OC Number:	N/A	
Sample preservation:	0.5% BrCl	An	alysis re	quest form?	No	
Acid lab # Hg Concentration:		coc	:/Sample	tag agree?	No	
Sample storage area:	Cabinet #2	See SOW	No	See Proje	ct Manage	No
bumpio otorogo arour		See Mem	No	See La	ab Manage	No
Sample Turnaround Time:		Consult MSDS	No	See C	ontract Inf	No
Contract Turnaround Time:	28 days					

Comments:

ab ID:	Sample Tag #	Container#	Size:	pН	Matrix/Sub-Matrix	Comments:
1	Field Blank-F	FPE 05-215	.250 mL Bottle		Water,	
Analysi	s / Method:	Hg, dissolved	EPA 1631			
	Blind DUP-F	FPE 05-215	250 mL Bottle	<u> </u>	Water,	
Analysi	s / Method:	Hg, dissolved	EPA 1631			
3	Blind DUP-W	FPE 05-251	500 mL Bottle		Water,	
Analysi	s / Method:	Hg	EPA 1631			
4	04EA084-817-981- 2FDUP	FPE 05-215	250 mL Bottle		Water,	
Analysi	s / Method:				HOLD	
5	04EA-084-817- 981-2WDUP	FPE 05-215	250 mL Bottle		Water,	
Analysi	is / Method:				HOLD	

pН

Maria L. Serry Rev. 10/25/05
Sample Custodian signature Date

Page / of / Brooks Rand LLC Chain Of Custody Record Ship to: Brooks Rand LLC Email address: Client: Konneco 0 3958 6th Avenue NW 053-2362 PO #: Contact: Seattle, WA 98107 Sampler's signatures: /icha. 44 UNION BLND. STEBOO Address: Phone: 206-632-6206 LAKE WOOD, CO 80228 Fax COC for receipt confirmation? (Y)/N) 206-632-6017 Email: brl@brooksrand.com Client project ID: 053-2362 Phone #: 303-980-0540 www.brooksrand.com BRL project ID: NJ (003 Fax #: 303-985-2080 Custody seals present? (AVN) Custody seals intact? (Y) N) Date: 9(3405 Initials: M Cooler temp (\*C): 20 För BRL use only Comments Analyses required Field Preservation Miscellaneous Collection Sample field filtered, Y/N ice only Sampler (initials) Unpreserved or Other (specify) Sample ID Matrix type **ENO**S D D IJ FIELD BLANK-F 9/39/05 3 BLIND DUP - U 04EA-084-817-981-2FDNP4/29/08 800 X 14EA-084-817-981-240UP 9/89/05 800 MSL 6 8 9 # of coolers: FED EX Shipping carrier: Time: Date: Received by: Time: /300 Date:9/29/2

Time:

Date:

Relinquished by:

Relinquished by:

White: LAB COPY

Yellow: CUSTOMER COPY

Time: 4.33



October 25, 2005

Golder Associates, Inc. Attn.: Scott H. Miller, P.G. 44 Union Blvd., Suite 300 Lakewood, CO 80228

RE: Brooks Rand Project: NJC003; Tracking #: 05BR1466

Client Project: Eagle Bedrock Pump Test, 053-2362

Dear Mr. Miller:

This report is for the total and dissolved mercury (Hg) analysis of two (2) water samples collected on 9/29/05 and received at Brooks Rand LLC (BRL) on 9/30/05. These samples have been assigned the BRL internal tracking number 05BR1466 and were received, stored, prepared and analyzed according to BRL standard operating procedures (SOPs) and EPA Method 1631E.

During analysis, these samples produced irregular peak shapes, potentially resulting in poor integration and a low bias for the Hg results. The samples were exhausted after reanalysis, and sample results from the diluted volume yielded Hg concentrations below the dilution-adjusted method detection limit (MDL). For this reason, sample results from the full volume analyses have been reported and qualified "J". These results should be considered estimates.

All results were blank corrected, as outlined in the calculations section of EPA Method 1631E. All QA criteria were met and no additional qualification of the data was required. BRL certifies that the reported test results meet all requirements of NELAC. BRL is a NELAC Accredited laboratory (NYS ELAP ID 11688).

If there are any questions, please feel free to contact us.

Sincerely,

Mariah Berry

Project Coordinator

mariah@brooksrand.com

Mariah Bung

Clybel Modnik
Elizabeth Madonick

Project Manager

elizabeth@brooksrand.com

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

3958 6th Avenue NW Seattle, WA 98107

Tel: 206-632-6206

Fax: 206-632-6017

NJC003

Lab Project# Lab Tracking # 05BR1466 Summary of Results for

Golder Associates

Contact: Scott H.

Miller, P.G.

80228

44 Union Blvd, Suite 300

Lakewood

Tel: (303) 980-0540

Quote

NJC003b

BRL

Client Project ID

Eagle Bedrock Pump Test

# Sample/Sampling/Receiving Info

Golder Associates

Sample

Identification 04EA-084-817-981-2F 04EA-084-817-981-2U Sampling Date

9/29/2005 9/29/2005

Sample Number 05BR1466 - 1 05BR1466 - 2

Receiving Date

9/30/2005 9/30/2005

Elipbed M. Smith

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

3958 6th Avenue NW

Seattle, WA 98107 Tel: 206-632-6206

Fax: 206-632-6017

Summary of Results for

Golder Associates

Contact: Scott H.

Miller, P.G.

44 Union Blvd. Suite 300

Lakewood

Tel: (303) 980-0540

80228

Lab Project # NJC003

05BR1466 Lab Tracking #

Quote

NJC003b

Client Project ID

Eagle Bedrock Pump Test

Hg

Sample Identification

**BRL Number** 

Preparation date

Analysis date

Batch #

Result

Units

Qualifier (Q)

04EA-084-817-981-2U

05BR1466 - 2

10/7/2005

10/10/2005

05-0783

0.660

ng/L

Tuesday, October 25, 2005

Elizaber M. Sancie

**Brooks Rand LLC** 

Contact: Elizabeth Madonick

3958 6th Avenue NW Seattle, WA 98107

Tel: 206-632-6206 Fax: 206-632-6017

Lab Project #

NJC003

Lab Tracking # 05BR1466 Summary of Results for

Golder Associates

Contact: Scott H.

Miller, P.G.

44 Union Blvd. Suite 300

Lakewood Tel: (303) 980-0540

80228

Quote

NJC003b

Client Project ID

Eagle Bedrock Pump Test

Hg, dissolved

Sample Identification

**BRL Number** 

Preparation date

Analysis date

Batch #

Result

Units

Qualifier (Q)

04EA-084-817-981-2F

05BR1466 - 1

10/7/2005

10/10/2005

05-0783

0.210

ng/L

Tuesday, October 25, 2005

Elizabel Modernick

Seattle, WA 98107 U.S.A.

206.632.6206

### QUALITY ASSURANCE REPORT

Batch:

05-0783

Analysis:

Mercury by EPA 1631.E (CVAFS)

Tracking:

05BR1321, 05BR1412, 05BR1429, 05BR1466, 05BR1484, 05BR1489,

05BR1496, & 05BR1499

Project:

IDQ002, URS014, LAF001, NJC003, AAK005, LOV001, BCT001 &

NEL002

Matrix:

Water

Batch Size:

17 samples

Analysis Date:

October 10, 2005

- 1 SAMPLE PREPARATION Acceptable
- 2 CALIBRATION Acceptable
- 3 CALIBRATION VERIFICATION Acceptable
- 4 QUALITY CONTROL SAMPLES Acceptable
- 5 BLANKS Acceptable
- 6 METHOD DUPLICATE ANALYSIS Not Applicable
- 7 SPIKE / SPIKE DUPLICATE ANALYSIS Acceptable
- 8 LIMITS OF DETECTION Acceptable, see section 9
- 9 OVERALL DATA QUALITY Acceptable

Analysis of samples 05BR1466-1 and 05BR1466-2 produced peaks with abnormal shapes. Reanalysis of the samples at a reduced volume produced results below the dilution adjusted PQL. The results from the analyses of the samples at full volume have been reported and have been qualified "J" as estimates.

Sample results have been evaluated using sample specific or client requested detection limits that may have been adjusted to account for sample aliquot size. Refer to the QA Summary for detection limits for affected samples.

No qualification of the data is required based on this review.

I certify that, to the best of my knowledge and belief, the data are reported as true and accurate. The Laboratory Director, or her designee, has authorized release of data contained in this Quality Assurance Report as verified by the following signature(s).

Tressa K. Pearson-Franks Quality Assurance Associate

#### BRL QA Summary

Batch #: 05-0783

Method #: EPA 1631.E

Analyte: Hg

Matrix: Water

BIAS		riteria: Recove	•
Continuing C	Calibration Ve	rification (CC	(V)
QCS ID	Certified Value ng/L	Measured Value ng/L	Recovery %
CCV1	5.00	4.61	92.1%
CCV2	5.00	5.05	101.1%
CCV3	5.00	5.06	101.2%
CCV4	5.00	5.00	100.0%

BIAS Independent		riteria: Recove erification (IC	Recovery = 85-115% ion (ICV)		
QCS ID	Certified Value ng/L	Measured Value ng/L	Recovery %		
ICV*	16.01	16.09	100.5%		

<sup>\*</sup> Preparation of the CRM NIST 1641d.

BIAS		Criteria: Rec	overy = 71-125	5%, RPD<24%				
Matrix Spikes	/Matrix Spik	e Duplicates (	MS/MSD)  Matrix Spike	· ·	Ma	trix Spike Dup	licate	
Sample ID	Sample Value ng/L	Spiked Value ng/L	Measured Value ng/L	MS Recovery	Spiked Value ng/L	Measured Value ng/L	MSD Recovery %	Duplicate RPD
05BR1321-1	3018	6061	9492	106.8%	6061	9652	109.5%	1.7%
05BR1489-1	26.03	61.14	89.38	103.6%	60.58	88.86	103.7%	0.6%

1.0% BrCl M	lethod Blanks	(MB) Criterion: $MB < 0.5 \text{ ng/L}$ Detection Lin			n Limits	
MB1	MB2	MB3	Average	StDev	MB MDL	MB PQL
ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
0.08	0.21	0.07	0.12	0.08	0.10	0.25

1.0% BrCl MB analyzed in triplicate.

Average MB result multiplied by appropriate factor to produce correction factor for each sample preservation BrCl level.

Sample	MDL	PQL
ID	ng/L	ng/L
05BR1321-1	10	25
)5BR1321-2	1.0	2.5
5BR1412-47	0.10	0.26
05BR1429-5	0.10	0.26

Sample Specific	c Detection I	imits
Sample	MDL	PQL
ID	ng/L	ng/L
05BR1484-2	0.10	0.26
05BR1489-1	0.20	0.50

Elipber M. dnik

10/25/2005

## **Brooks Rand LLC Sample Receiving Log**

			10/28/2005	i		
Tracking #	05BR1466		Rece	eiving Date:	9/30/2005	
			Rece	lving Time:	7:00 AM	
Customer:	Golder Associates			-		
Contact:	Scott Miller		Lo	gged-in by:	Stuart Brov	<b>vr</b> i
Project Ref. #:	NJC003		L	.og-in Date:	9/30/2005	
Collection Date	9/29/2005		L	og-in Time:	8:25 AM	
QA Level	Standard		Airb	ill present?	Yes	
				Airbill #	853172916	870
Sample Condition	Intact			Carrier:	Fedex	
Shipping container intact?	Yes					
Shipping container type:	Cooler	Cı	ustody se	al present?	Yes	
			Custody s	seal intact?	Yes	
Shipping container temp:	ambient		CO	C Present?	Yes	
Shipping container coolant:	none		CO	C Number:	N/A	
Sample preservation:	попе	An	alysis req	uest form?	No	
Acid lab # Hg Concentration:		COC	/Sample	tag agree?	Yes	
•	Cabinet #1	See SOW	No	See Proje	ct Manage	No
Sample storage area:	Cabineter	See Mem	No	-	b Manage	No
					ontract Inf	No
Sample Turnaround Time:		Consult MSDS	No	See Ci	Jimaol III	NO
Contract Turnaround Time:	28 days					

Comments:

ab ID:	Sample Tag#	Container#	Size: pl	H Matrix/Sub-Matrix	Comments:
1	04EA-084-817- 981-2F	FPE 05-215	250 mL Bottle	Water,	
Analysis	s / Method:	Hg, dissolved	EPA 1631		
.2	04EA-084-817- 981-2U	FPE 05-215	250 mL Bottle	Water,	
Analysis	s / Method:	Hg	EPA 1631		

Maria Berry update 18/3/63
Sample Custodian signature Date

Brooks Rand LLC	Chain O	f Custody	Record
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Yellow: CUSTOMER COPY